

CLAIMS

1. Method of producing an air filtering device, **characterized by the following stages:**

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- a number of modules, which have housings of identical cross-section and comprise at least a first module type (4) and a second module type (6) are arranged in series in a row,
- a module of the first module type (4), which has at least one inlet (42), is arranged as an inlet module (4) and is connected in series to at least two modules (8, 10: 16) of the second module type (6), at least one of which contains filter elements (12, 14),
- of at least two modules of the second module type (6), one is arranged as an outlet module (16) and at least one as a through-flow module (8, 10),
- the modules are joined together by means of locking members (32) arranged in each module, in such a way that the modules create an enclosed air duct (4, 8, 10, 16).

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1. Method according to Claim 1, **characterized in that** for each module (4, 6) a housing (20) is manufactured by forming a body (21) with a front framework (22) and a lower framework (24), around which body a wall (26) is fitted covering three sides of the housing.

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2. Method according to Claim 2, **characterized in that** an upper assembly seam (28) is formed around an upper open side of the housing (20).

3. Method according to Claim 3, **characterized in that** a lower assembly seam (30) is formed around a lower open side of the housing (20).

4. Method according to Claim 4, **characterized in that** two adjacent housings (20) are joined together by means of locking members (32) arranged in each housing.

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5. Method according to Claim 5, **characterized in that** the locking members (32) are fitted in holes made for this purpose in the lower framework (24) and in the upper assembly seam (28) and the lower assembly seam (30).

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6. Method according to Claim 6, **characterized in that** each locking member (32) is formed as a tubular element with a threaded pin (34) at an (upper) end and at the (other) lower end as a hollow sleeve (36) having an internal thread corresponding to the pin.

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7. Method according to Claim 7, **characterized in that** each locking member (32) is fitted into the holes made for this purpose in such a way that the locking member is fitted so that it can rotate in relation to the lower framework (24) and the upper assembly seam (28) and the lower assembly seam (30), whilst the locking member (32) is restrained between the assembly seams (28, 30).

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8. Method according to any one of Claims 2 to 8, **characterized in that** an open side of the housing (20) defined by the front framework (22) is closed by means of a front panel (38).

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9. Method according to Claim 9, **characterized in that** the front panel (38) is provided with a packing (39), which is made to bear tightly against the front

framework (22) by bringing locking elements (40) into engagement with the front framework (22).

- 5 10. Method according to any one of the preceding Claims, **characterized in that** the inlet module (4) is provided with inlets (42), above which a primary filter element (44) is arranged and below which the height of the inlet module is divided by a plate (46) for collecting liquid pollutants.
- 10 11. Method according to any one of the preceding Claims, **characterized in that** a filter element (12, 14) is fitted directly to the lower framework (24) of the module of the second module type (6) by means of a device (50), which is made to run thereon.
- 15 12. Method according to Claim 12, **characterized in that** the filter element (12, 14) is made to assume its final assembly position with the underside thereof fitted in tight sealing contact with the lower framework (24).
- 20 13. Method according to Claim 13, **characterized in that** on either side of the filter element (12, 14) fasteners (58) are fitted which are fixed to the locking members (32), by means of which the filter element (12, 14) is anchored in the module.
- 25 14. Method according to Claim 14, **characterized in that** a contamination indicator (61) is fitted in the associated front panel (38) for registering and indicating the degree of contamination of the filter element (12, 14).
15. Method according to any one of the preceding Claims, **characterized in that** a module of the second module type (6) is provided with a fan element

(18), the fan housing (64) of which at its air inlet end is integrated with a sandwich plate (62), which is fitted between the assembly seams (28, 30) on two adjacent housings (20, 20') for modules of the second module type (6).

5 16. Method according to any one of Claims 12 to 16, **characterized in that** the module of the second module type (6) is arranged as a through-flow module (8, 10).

10 17. Method according to any one of Claims 12 to 16, **characterized in that** the module of the second module type (6) is arranged as an outlet module (16).

15 18. Method according to Claim 18, **characterized in that** the outlet module (16) is provided with an air-permeable cover plate (72), which is fixed to the top of the outlet module by means of nuts (74), which are provided with loops and can be connected to the locking members (32).

20 19. Method according to any one of the preceding Claims, **characterized in that** in assembling the filtering device a sealing plane (76) is fitted between adjoining modules (4, 6).

25 20. Air filtering device, **characterized in that** a number of modules, which have housings of identical cross-section and comprise at least a first module type (4) and a second module type (6) are arranged in series in a row, that a module of the first module type (4) is arranged as an inlet module (4) having at least one inlet (42), that the inlet module (4) is connected in series to at least two modules (8, 10: 16) of the second module type (6), at least one of which contains filter elements (12, 14), and one of which is arranged as an outlet module (16) and at least one as a through-flow module (8, 10), and

that the modules are joined together by means of locking members (32) arranged in each module, in such a way that the modules create an enclosed air duct (4, 8, 10, 16).

- 5 21. Air filtering device according to Claim 21, **characterized in that** each module (4, 6) has a housing (20) with a body (21), which is formed with a front framework (22) and a lower framework (24), around which body a wall (26) is fitted covering three sides of the housing.
- 10 22. Air filtering device according to Claim 22, **characterized in that** an upper assembly seam (28) is formed around an upper open side of the housing (20).
23. Air filtering device according to Claim 23, **characterized in that** a lower assembly seam (30) is formed around a lower open side of the housing (20).
- 15 24. Air filtering device according to Claim 24, **characterized in that** two adjacent housings (20) are joined together by means of locking members (32) arranged in each housing.
- 20 25. Air filtering device according to Claim 25, **characterized in that** the locking members (32) are fitted in holes made for this purpose in the lower framework (24) and in the upper assembly seam (28) and the lower assembly seam (30).
- 25 26. Air filtering device according to Claim 26, **characterized in that** each locking member (32) is formed as a tubular element with a threaded pin (34) at an (upper) end and at the (other) lower end as a hollow sleeve (36) having an internal thread corresponding to the pin.

27. Air filtering device according to Claim 27, **characterized in that** each locking member (32) has been fitted into the holes made for this purpose in such a way that the locking member is fitted so that it can rotate in relation to the lower framework (24) and the upper assembly seam (28) and the lower assembly seam (30) whilst the locking member (32) is restrained between the assembly seams (28, 30).

28. Air filtering device according to any one of Claims 22 to 28, **characterized in that** an open side of the housing (20) defined by the front framework (22) is closed by means of a front panel (38).

29. Air filtering device according to Claim 29, **characterized in that** the front panel (38) is provided with a packing (39), which has been made to bear tightly against the front framework (22) by bringing locking elements (40) into engagement with the front framework (22).

30. Air filtering device according to any one of the preceding Claims, **characterized in that** the inlet module (4) has inlets (42), above which a primary filter element (44) is arranged and below which the height of the inlet module is divided by a plate (46) for collecting liquid pollutants.

31. Air filtering device according to any one of the preceding Claims, **characterized in that** a filter element (12, 14) is fitted directly to the lower framework (24) of the module of the second module type (6) by means of a roller device (50), which is made to run thereon.

32. Air filtering device according to Claim 32, **characterized in that** the filter element (12, 14) has been made to assume its final assembly position with the underside thereof fitted in tight sealing contact with the lower framework (24).

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33. Air filtering device according to Claim 33, **characterized in that** on either side of the filter element (12, 14) fasteners (58) are fixed to the locking members (32), by means of which the filter element (12, 14) is anchored in the module.

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34. Air filtering device according to Claim 34, **characterized in that** a contamination indicator (61) is fitted in the associated front panel (38) for registering and indicating the degree of contamination of the filter element (12, 14).

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35. Air filtering device according to any one of the preceding Claims, **characterized in that** a module of the second module type (6) comprises a fan element (18), the fan housing (64) of which at its air inlet end is integrated with a sandwich plate (62), which is fitted between the assembly seams (28, 30) on two adjacent housings (20, 20') for modules of the first or second module type (4, 6).

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36. Air filtering device according to any one of Claims 32 to 36, **characterized in that** the module of the second module type (6) is arranged as a through-flow module (8, 10).

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37. Air filtering device according to any one of Claims 32 to 36, **characterized in that** the module of the second module type (6) is arranged as an outlet module (16).

38. Air filtering device according to Claim 38, **characterized in that** the outlet module (16) is provided with an air-permeable cover plate (72), which is fixed to the top of the outlet module by means of nuts (74), which are provided with loops and are connected to the locking members (32).
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39. Air filtering device according to any one of the preceding Claims, **characterized in that** a sealing plane (76) is fitted between each module (4, 6).